



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

DEC 21 1993

**MEMORANDUM**

OFFICE OF  
PREVENTION, PESTICIDES AND  
TOXIC SUBSTANCES

Subject: Data review for Permethrin (109701)

From: *for* Anthony F. Maciorowski, Branch Chief  
Ecological Effects Branch  
Environmental Fate and Effects Division (7507C) 12/20/93

To: Linda DeLuise  
Product Manager 52  
Special Review and Reregistration (7508W)

EEB has completed the review of the data submission for permethrin. The following is a brief summary of the data reviewed:

**CITATION:** Forbis, A.D. and W.A. McAllister. 1980. Chronic Toxicity of <sup>14</sup>C-Permethrin to *Daphnia magna* Under Flow-Through Test Conditions. ABC Report No. 23647. Study conducted by Analytical Bio-Chemistry Laboratories, Inc., Columbia, MO. Submitted by ICI Americas, Inc., Goldsboro, NC. EPA MRID No. 47039.

**CONCLUSIONS:** This study is not scientifically sound and does not meet the guideline requirements for a daphnid life-cycle test.

Mean measured concentrations were highly variable during the test. The measured concentrations were 121-142% of the nominal concentrations. Guidance from the September 1992 draft document from EFED to the Ecological Risk Assessment Work Group (ERAWG)/National Agricultural Chemicals Association (NACA) discussing acceptable aquatic lab studies intimates that, "An increase in measured test concentration of more than 30% from the nominal concentration during the test will generally not result in rejection, provided that the following conditions are met:

1. a reasonable and scientific explanation is given, and the variability of results produced by the chemical analysis method is adequately characterized;
2. all test containers exhibit a similar (but not necessarily identical) shift;
3. the variability of the measured concentrations is acceptable;



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4. a statistically valid endpoint can be derived from the measured concentrations, and

5. the preliminary stability information is provided with complete documentation and description of methods used to derive such information."

A stability study<sup>1</sup> (MRID No. 408703-01) was submitted along with the daphnia study. This study reported that the "stability of <sup>14</sup>C-permethrin in acetone and in aqueous solution as observed in this study gives credibility to the conclusion that the stock solution employed in the 21-day chronic study was stable under the conditions employed for that study as described in the aforementioned report." However, the results from this study do not explain the high degree of variability observed in the daphnia chronic study. No explanation of these variations was reported by the author. This variation may be an indication of diluter malfunctions or an error in stock solution preparation.

In addition, daphnid growth was not measured during the test. Data on survival and growth must be reported as stated in the ASTM guidelines "Standard Guide for Conducting Renewal Life-Cycle Toxicity Tests with Daphnia magna" (E 1193-87) as either length or dry weight .

Also, water quality was monitored during the first half of the study only. As stated in the aforementioned guidelines, E 1193-87, "Hardness, alkalinity, conductivity, and pH should be measured...at least weekly during the test..."

If there are any questions, contact Renee Lamb at 305-5294.

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<sup>1</sup> This study was not reviewed by EEB and does not need to be sent to EFGWB for review.

DP BARCODE: D180148

REREG CASE # 2510

CASE: 819432  
SUBMISSION: S420962

DATA PACKAGE RECORD  
BEAN SHEET

DATE: 07/08/92  
Page 1 of 1

\* \* \* CASE/SUBMISSION INFORMATION \* \* \*

CASE TYPE: REREGISTRATION ACTION: 627 GENERIC DATA SUBMISSION  
CHEMICALS: 109701 Permethrin, mixed cis,trans (ANSI) 100.00 %

ID#: 109701

COMPANY:

PRODUCT MANAGER: 52 LINDA DELUISE 703-308-8065 ROOM: CS1 3F3  
PM TEAM REVIEWER: LINDA DELUISE 703-308-8065 ROOM: CS1 3F3  
RECEIVED DATE: 06/30/92 DUE OUT DATE: 09/08/92

\* \* \* DATA PACKAGE INFORMATION \* \* \*

DP BARCODE: 180148 EXPEDITE: N DATE SENT: 07/01/92 DATE RET.: / /  
CHEMICAL: 109701 Permethrin, mixed cis,trans (ANSI)  
DP TYPE: 999 Miscellaneous Data Package  
ADMIN DUE DATE: 08/20/92 CSF: N LABEL: N

ASSIGNED TO	DATE IN	DATE OUT
DIV : EFED	07/10/92	/ /
BRAN: EEB	07/10/92	/ /
SECT:	/ /	/ /
REVR :	/ /	/ /
CONTR:	/ /	/ /

\* \* \* DATA REVIEW INSTRUCTIONS \* \* \*

please review mrid 41315701 & 47039 for 72-4(b)

\* \* \* ADDITIONAL DATA PACKAGES FOR THIS SUBMISSION \* \* \*

DP BC	BRANCH/SECTION	DATE OUT	DUE BACK	INS	CSF	LABEL
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408703-01 - STABILITY STUDY

180 - Invalid Daphnia file copy

DP Barcode : D180148  
PC Code No : 109701  
EEB Out : 109701

To: Linda DeLuise  
Product Manager 52  
Special Review and Reregistration Division (7508W)

From: Anthony F. Maciorowski, Chief  
Ecological Effects Branch/EFED (7507C)

Attached, please find the EEB review of...

Reg./File # : 109701  
Chemical Name : Permethrin  
Type Product : Insecticide - synthetic pyrethroid  
Product Name : Ambush, Pounce  
Company Name : FMC Corp and ICI Americas Inc.  
Purpose : Review daphnia chronic study

Action Code : 627 Date Due : 08/20/92 12/31/93  
Reviewer : Renee Lamb

EEB Guideline/MRID Summary Table: The review in this package contains an evaluation of the following:

GDLN NO	MRID NO	CAT	GDLN NO	MRID NO	CAT	GDLN NO	MRID NO	CAT
71-1(A)			72-2(A)			72-7(A)		
71-1(B)			72-2(B)			72-7(B)		
71-2(A)			72-3(A)			122-1(A)		
71-2(B)			72-3(B)			122-1(B)		
71-3			72-3(C)			122-2		
71-4(A)			72-3(D)			123-1(A)		
71-4(B)			72-3(E)			123-1(B)		
71-5(A)			72-3(F)			123-2		
71-5(B)			72-4(A)			124-1		
72-1(A)			72-4(B)	413157-01	N	124-2		
72-1(B)			72-4 (B)	47039		141-1		
72-1(C)			72-6			141-2		
72-1(C)						141-5		

Y=Acceptable (Study satisfied Guideline)/Concur

P=Partial (Study partially fulfilled Guideline but additional information is needed)

S=Supplemental (Study provided useful information but Guideline was not satisfied)

M=Unacceptable (Study was rejected)/Nonconcur